

CLAMP ASSEMBLY FOR BEND ARM OF TUBE BENDING MACHINE

Abstract of the Disclosure

A clamping assembly for use with a bend arm of a tube bending machine is provided. The clamping assembly comprises a force multiplier linkage that applies a controlled and variable force to a workpiece. In one embodiment, the force multiplier linkage comprises a bearing member pivoted by an actuator acting on one end of a force multiplier arm that is attached to the bearing member. The pivot axis of the bearing member and the line of action of the actuator define a lever arm distance $D1$. In one embodiment, a pivot member supporting a drive link is fixedly attached to the bearing member at a location offset from the pivot axis of the bearing member. The drive link is configured to pivot about the pivot member axis so that in cooperation with additional links it moves a bend arm slider. The drive link is further configured to pivot about the axis of the bearing member. The axis of the bearing member and the pivot member axis define a load arm distance $D2$. As the bearing member is pivoted about its axis by the force multiplier arm, the drive link also pivots about the axis of the bearing member. In one embodiment, the force multiplication is substantially equal to the ratio of $D1$ to $D2$.

PATENT

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